

**Before the  
Federal Communications Commission  
Washington, D.C. 20554**

In the Matter of	)	
	)	
Request by <u>County of Bucks, Pennsylvania</u> for	)	PS Docket No. 06-229
Waiver of the Commission's Rules to Deploy a	)	
700 MHz Public Safety Interoperable Broadband	)	
Network That Can Be Integrated into the Public-	)	
Private Partnership	)	

Submitted by:

County of Bucks  
Department of Emergency Communications  
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June 28, 2010

## REQUEST FOR WAIVER

Pursuant to Section 1.925(b) of the Commission's rules, the County of Bucks respectfully requests that the Federal Communications Commission ("FCC/Commission") grant a waiver of its 700 MHz public safety early deployment rules to enable the construction and operation of a 700 MHz interoperable public safety broadband network. The requested waiver will serve the public interest by improving communications for first responders today without sacrificing any of the policy goals the Commission is seeking to achieve in its 700 MHz rulemaking.

The County of Bucks has identified public safety interoperable broadband services as a priority and is prepared to make the capital investment necessary to deploy a network as quickly as possible in the 700 MHz public safety broadband spectrum. As demonstrated below, our stand-alone network will meet the technical specifications the FCC has proposed in the *Third Further Notice*<sup>1</sup> and the September 4, 2009 National Public Safety Telecommunications Council ("NPSTC") 700 MHz Broadband Task Force Report and Recommendations ("NPSTC Recommendations")<sup>2</sup> and can be integrated into a future interoperable National Public Safety Broadband Network. The County of Bucks asks the Commission to act quickly on this request for waiver. Grant will enable rapid public safety broadband deployment in Band Class 14 in the 700 MHz band, while the network contemplated by the Commission remains years from deployment.

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<sup>1</sup> See *Service Rules for the 698-746, 747-762 and 777-792 MHz Bands; Implementing a Nationwide, Broadband, Interoperable Public Safety Network in the 700 MHz Band*, WT Docket No. 06-150 and PS Docket No. 06-229, *Third Further Notice of Proposed Rulemaking*, FCC 08-230 (rel. Sept. 25, 2008) ("*Third Further Notice*").

<sup>2</sup> See NPSTC 700 MHz Broadband Task Force Report and Recommendations, (Sept. 4, 2009) ("NPSTC Recommendations").

## I. INTRODUCTION

Over the last few years, the Commission has taken significant steps to advance nationwide interoperable public safety broadband communications. Despite these efforts, Auction 73 did not result in a winning bidder for the Upper 700 MHz D Block license. Yet there is an urgent need to provide wireless broadband to our first responders. County of Bucks stands ready to commit the resources to put this critical 700 MHz spectrum to use and deploy interoperable Long Term Evolution (“LTE”) public safety broadband systems that could later be integrated into a nationwide public safety broadband solution.

Today there is overwhelming unanimity amongst all public safety agencies and associations that the technology of choice should be LTE, which is an open standard technology that has been adopted by the major global commercial mobile service providers for deployment in the United States this year. In addition, APCO International, the National Emergency Numbering Association, the Public Safety Spectrum Trust (“PSST”), and NPSTC have all publicly endorsed LTE for use in the public safety 700 MHz spectrum space. Likewise, the overwhelming majority of the 13 filed petitions for waiver that the Commission has sought comment on that also seek the authority to deploy public safety broadband systems on a local or regional basis in the 700 MHz public safety broadband spectrum have declared that LTE is the technology of choice.<sup>3</sup> Thus, the Commission should seize this opportunity to harness precious resources by modifying its current 700 MHz early build-out rules to enable early deployments and choose LTE as the air interface.

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<sup>3</sup> *Public Safety and Homeland Security Bureau Seeks Comment on Petitions for Waiver to Deploy 700 MHz Public Safety Broadband Networks, Public Notice*, PS Docket No. 06-229, DA 09-1819, ¶ 1 (rel. Aug. 14, 2009) (“*Public Notice*”).

In the *Second Report & Order*, the Commission recognized the need to balance two important goals as it crafted the 700 MHz public safety broadband policy: (1) foster a public-private solution to develop nationwide interoperable public safety broadband communications; and (2) enable jurisdictions with available resources to deploy public safety broadband systems on an accelerated basis in some circumstances.<sup>4</sup> As to the second goal, though the Commission granted the D Block licensee the “exclusive right” to build out the 700 MHz commercial/public safety broadband network (the “Shared Wireless Broadband Network”),<sup>5</sup> it created two exceptions to this policy: (1) public safety entities were permitted to undertake an earlier build-out than would be provided for in the Network Sharing Agreement (“NSA”), with the public safety entities entitled to compensation up to the amount the D Block licensee would have incurred if had it constructed the network itself; and (2) public safety could build their own broadband networks in areas not included in the NSA.<sup>6</sup> Thus, the current early deployment options are premised on D Block licensing and adoption of the NSA. With no D Block licensee and no NSA, and in any event with deployment years away, today there is no clear path for public safety entities in need of broadband solutions.

To that end, the Commission should clarify that jurisdictions may begin early deployments so long as they meet the technical requirements for 700 MHz public safety systems and a commitment is made to facilitate roaming and interoperability with the National Public Safety Broadband Network.

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<sup>4</sup> *Service Rules for the 698-746, 747-762 and 777-792 MHz Bands*, Report and Order, 22 FCC Rcd 15289 (2007) (“*Second Report & Order*”).

<sup>5</sup> *Id.* at ¶ 470.

<sup>6</sup> *Id.* at ¶¶ 471-84.

**II. COUNTY OF BUCKS NEEDS BETTER PUBLIC SAFETY BROADBAND COMMUNICATIONS AND IS PREPARED TO DEVOTE RESOURCES TO DEPLOY AN INTEROPERABLE NETWORK IN THE 700 MHZ BAND.**

In The County of Bucks there is a dire need for the broadband services that a newly-deployed 700 MHz public safety broadband system would supply:

The County of Bucks Police, Fire and Emergency Medical departments are forced to do without broadband wireless communications or fund prohibitively high recurring monthly charges for commercial wireless services. Because of the lack of the needed Public Safety oriented broadband wireless connectivity, police officers without wireless services must return to their headquarters stations to access routine criminal justice information or obtain limited information over the air. This information would be readily available to officers in the field if broadband data access was available.

- The County of Bucks volunteer firefighters lack connectivity to wireless broadband service, all front line Fire Department Companies must utilize commercial grade wireless companies. These commercial services represent a costly recurring charge to these departments. With a Public Safety grade Wireless Network, firefighters could potentially access real-time full-motion video capabilities to provide situational information to other first responders, while en-route or at the scene, as well as to supporting Companies in response to an emergency.
- With broadband wireless communications resources available to the First Responder in the County of Bucks, Pennsylvania
  - Police officers would know quickly and silently that the vehicle they are stopping is stolen, know that the individual they are interviewing is wanted or dangerous, and have the potential to be able to conduct photo lineups of suspects while still at the crime scene, and be able to access web-enabled surveillance cameras in public facilities to gain intelligence critical to the safe resolution of blockaded or hostage incidents;
  - Firefighters would know which routes were blocked due to construction or accidents by accessing an online GIS system and what hazardous conditions exist as soon as the data is updated by Police and other Emergency Responders
  - Medics would be able to stream patient's vitals and 12 lead Electrocardiographic data of the patient to the Emergency Rooms, where the doctors would be able to

- better and more quickly diagnose and issue orders for treatment while the ambulance is en-route to the hospital; and
- Emergency Managers would be able to receive real-time data and video from incident sites, teleconference with the Incident Commanders, and quickly share critical information, and mobilize essential resources to ensure the swift and safe resolution of the emergency situation.

The County of Bucks is prepared to deploy a public safety broadband network in the 700 MHz band in the near-term future. Deployment of such a network in the County of Bucks will enhance day-to-day, task force and mutual aid response through support of a full spectrum of interoperable IP multi-media applications, including:

- Streaming video (surveillance, remote monitoring)
- Digital Imaging
- Automatic Vehicle Location
- Computer Aided Dispatching
- Email
- Mapping/GIS
- Remote Database Access
- Report Management System Access
- Text Messaging
- Telemetry/Remote Diagnostics
- Web Access

A broadband public safety network in the County of Bucks will support applications that currently cannot be supported over existing narrowband or wideband wireless data technologies. Tasks that require the consumption of substantial time to communicate between dispatchers and other officers on narrowband voice systems (*e.g.*, database lookups and dispatch messaging) could be off-loaded to broadband spectrum, significantly reducing narrowband channel load. In addition, allowing police officers, for example, to have remote access to databases (*e.g.*, DMV, warrants, missing persons and stolen vehicle databases, etc.), remote form entry and reporting and web access will enhance public safety by increasing officer efficiency, reducing paperwork and allow officers to spend more of their time on patrol.

Broadband networks will allow mission-critical information to be exchanged in real-time, anytime, anywhere. Distribution of images (floor plans, mug shots, incident stills), videos (surveillance feeds, on-scene video), messaging, access to incident management databases provide a common operating picture and access to information from the field, enhancing both incident response and first responder safety. Finally, broadband networks will allow for the secure, easy and interoperable sharing of information (voice, video and multi-media data) among members of a task force.

To realize these benefits, however, we need the Commission's authorization to operate our own network until it can be integrated into the larger National Public Safety Broadband Network. We believe installation would begin with network engineering, site prep and deployment of the backhaul network in late 2010 and be fully operational by early 2012 in LTE band class 14 with 19 eNodeBs. Thus, the public interest would be served if the Commission grants the waiver requested herein, we request that favorable action on this request be taken expeditiously.

### **III. THE REQUESTED WAIVER IS IN THE PUBLIC INTEREST AND SHOULD BE GRANTED.**

The public interest will be served by allowing The County of Bucks to engage in early deployment. To obtain a waiver of the Commission's rules, a petitioner must demonstrate either that (1) the underlying purpose of the rule(s) would not be served or would be frustrated by application to the present case, and that a grant of the waiver would be in the public interest, or (2) in view of unique or unusual factual circumstances of the instant case, application of the rule(s) would be inequitable, unduly burdensome, or contrary to the public interest, or the applicant has no reasonable alternative.<sup>7</sup>

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<sup>7</sup> 47 C.F.R. § 1.925(b)(3). Waiver applicants face a high hurdle and must plead with particularity the facts and circumstances that warrant a waiver. *WAIT Radio v. FCC*, 413 F.2d 1153, 1157 (D.C. Cir. 1969) (*WAIT Radio*), *aff'd*, 459 F.2d 1203 (1973), *cert. denied*, 409 U.S. 1027 (1972).

Under either of these standards, the requested waiver allowing the County of Bucks to deploy a public safety broadband network in advance of the National Public Safety Broadband Network is justified.

**A. Grant of the Waiver Will Enable The County of Bucks to Deploy an Interoperable Broadband Network to Serve First Responders.**

The tragic events of September 11, 2001 and Hurricane Katrina made clear that public safety entities need more interoperable communications capabilities. The reality is that the deployment of a nationwide network from which local public safety entities can obtain broadband services is likely years away. The County of Bucks is willing to commit resources to bridge this gap so that its first responders can utilize broadband technology to protect life and property immediately.

While we wait for resolution of the Commission's proceeding, the public interest requires that local authorities like The County of Bucks be allowed to deploy their own interoperable, broadband public safety communications networks. In these unique circumstances, waiver of the rules limiting such deployment to Band Class 14 of the 700 MHz Block will serve the public interest.

**B. The Network Will Be Robust and Will Satisfy the Technical Specifications Proposed by the Commission in the *Third Further Notice* and the NPSTC Recommendations.**

The County of Bucks believes that the selection of LTE as the common air interface technology for use in the public safety 700 MHz band to be an essential first step to achieving the goal of nationwide interoperability. The County of Bucks is planning deployment of a LTE network to support public safety operations. This LTE system will be deployed to operate on a paired assignment of 5 MHz wide channels in the public safety broadband block between 793-798 MHz for mobile transmission and 763-768 MHz for base station transmission. The



equipment operating band will be compliant with Band Class 14 as specified in the 3GPP standards. LTE is a commercial open standard technology which is being deployed by commercial wireless operators in the commercial portions of the 700 MHz band today.

LTE deployed in the Public Safety Broadband Block would meet the technical specifications proposed by the Commission in its *Third Further Notice*, as well as the NPSTC recommended requirements identified in the NPSTC Recommendations.<sup>8</sup> In particular:

- Capacity, Throughput, and Quality of Service. With user peak data rates of 31.7 Mbps (downlink) and 9.1 Mbps (uplink) when deployed on 2x5 MHz channels and quality of service support for real-time and non-real-time IP-based applications, LTE will support all the applications listed in Table 1 of proposed Section 27.1305 of the Commission's rules. Networks will be designed with effective cell edge data rates exceeding those listed in Table 2 of proposed Section 27.1305. In addition, the systems will provide QoS mechanisms and priority levels consistent with LTE standards.
- Security and Encryption. LTE is highly secure in view of its use of a variety of robust authorization and authentication mechanisms employing standard encryption techniques for both media and signaling traffic. IPsec is supported. The system will comply with commercial best practices.
- Availability, Robustness, and Hardening. Public Safety LTE networks will be designed for robustness and reliability. Using LTE, public safety networks exceeding 99.6% availability metric excluding radio signal coverage and scheduled maintenance downtime can be deployed. Furthermore, network equipment can be deployed at existing public safety Land Mobile Radio sites, which have been typically hardened to meet the needs of mission-critical public safety communications.

Over the past several months, public safety, equipment manufacturers and commercial wireless service providers under the auspices of the NPSTC's Broadband Task Force have worked to develop minimum recommendations for LTE-based systems, to ensure roaming and interoperability among the Petitioners who plan to build ahead of the national network. The County of Bucks supports the NPSTC Broadband Task Force recommendations as they are

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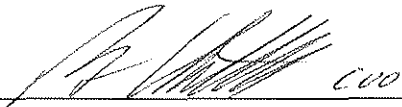
<sup>8</sup> See NPSTC Recommendations *supra* at 2.

useful guidelines for achieving roaming and interoperability and will build its planned network to these recommendations.<sup>9</sup>

#### IV. CONCLUSION

The Commission would significantly advance the cause of public safety by allowing The County of Bucks, Pennsylvania to deploy its own public safety broadband network in Band Class 14 that would operate until a National Public Safety Broadband Network is established in the 700 MHz band. The County of Bucks stands ready to begin deployment of life-saving broadband services, and respectfully requests that the Commission promptly allow it to begin by granting the waiver as requested herein.

Respectfully submitted,

 CVO 6/28/10  
[ **Brian Hessenthaler** ]  
[ **Chief Operating Officer, County of Bucks** ]

June 28, 2010

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<sup>9</sup> See *Id.* at 2. In developing its set of technical recommendations, the task force took into account the roaming scenarios that would be encountered by state and local jurisdictions seeking to deploy 700 MHz LTE systems via a waiver, including: roaming between 700 MHz public safety LTE networks, roaming between private 700 MHz public safety LTE and D block shared LTE network, roaming between 700 MHz public safety LTE networks to commercial 700 MHz LTE networks, and roaming between 700 MHz public safety LTE networks to commercial and private broadband networks (3GPP and non-3GPP) in other bands.

The NPSTC Recommendations provide a sound set of requirements and technical implementation guidelines to support interoperability among public safety agencies deploying LTE-based systems via a waiver. The technical implementation guidelines take into account the evolution of LTE technology, as well as public safety users' immediate-term application needs. The report's proposed recommendation for a public safety broadband roaming exchange is a sensible and pragmatic approach to support inter-regional roaming.